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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,562	12/22/2003	Remuga Gopal	NAA 0020 PA/41049.22	5054
23368 7590 05/12/2009 DINSMORE & SHOHL LLP ONE DAYTON CENTRE, ONE SOUTH MAIN STREET SUITE 1300 DAYTON, OH 45402-2023				
EXAMINER DANIELS, MATTHEW J				
ART UNIT		PAPER NUMBER		
1791				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/743,562

**Applicant(s)**

GOPAL ET AL.

**Examiner**

MATTHEW J. DANIELS

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. **Claim 5** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not appear to disclose bending and pulling upon the bent material.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-3 and 7-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Moichi (JP 01-222927) in view of Baier (US 3,159,513). **As to Claim 1**, Moichi teaches a process for making a wire which could be used as an orthodontic wire comprising placing a composite of fiber and resin (10) in a shrinkable die having a length (11) and a top (11a) and a bottom (11b), wherein the composite is formed of a material that shrinks in response to heat (bottom figure);

heating the die containing the composite to shrink the die and cure and shrink the composite ("heating the body"), wherein the composite is shrunk to a pre-determined transversal cross-sectional shape (inherent), and heating occurs gradually along the length of the die (last figure); and,

separating the composite from the die (Fig. 1(i)).

Moichi does not expressly teach that (a) there is a top and bottom, and (b) shrinking such that the shrinking occurs at one of the top and the bottom prior to occurring at the other of the top and the bottom. However, the relative orientation does not distinguish the claimed process from the prior art since the process is performed in the same manner regardless of how the Moichi material is oriented, and the ordinary artisan would have found it obvious to orient the shrinkable tube in either direction.

Additionally, Baier teaches that in using a heat shrinkable die to shape a resin/fiber composite placed in the die, it is known to perform the heating by progressively heating from one end to the other (Fig. 4).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Baier into that of Moichi because (a) this requires merely the simple substitution of one heating technique for another to provide the predictable result that the air would be expelled from only one end of the tube, rather than both, or (b) Baier provides a known technique that is applicable to the Moichi process in view of their similar teaching of shaping using heat shrinkable materials, and one of ordinary skill in the art would have recognized that applying the known technique to the Moichi process would merely expel air from the formed composite in one direction instead of two.

**As to Claims 2 and 3**, it is submitted that Moichi provides open ends (Figs. 1(f)-1(g)) which have the capability to allow resin to leave, and wherein the resin would retain the shape given by the die (Fig. 1(i)). **As to Claims 7 and 8**, Moichi provides strands longer than the die and pulls them through the die. **As to Claims 9 and 10**, Moichi pulls at the ends (Fig. 1(g)) and impregnated the strands prior to the pulling (see Abstract translation). Although not disclosed as the “top” or “bottom” Moichi teaches a process that renders the claimed process obvious for the same reasons as set forth in Claim 1.

3. **Claims 4, 5, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Moichi (JP 01-222927) in view of Baier (US 3,159,513), and further in view of Goldberg (US 4,717,341). **As to Claims 4, 5, and 14**, Moichi teaches pulling on the material, but is silent to the bending. However, Goldberg teaches that it is known to provide bent resin/reinforcement composites in the form of arch wires, and therefore it is submitted that it would have been obvious to provide a step of bending to achieve bent wires. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Goldberg into that of Moichi because one of ordinary skill in the art would have recognized that Goldberg provides a known technique (bending) applicable to fiber/reinforcement composites, and in view of Moichi’s teaching of similar fiber/resin composites, one would have recognized that the Goldberg bending technique could be applied to the similar fiber/resin composite of Moichi to yield a predictable result - a bent article.

4. **Claims 11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Moichi (JP 01-222927) in view of Baier (US 3,159,513), and further in view of Kalnin (US 3,674,581). **As to Claims 11 and 12**, Moichi teaches providing resin prior to placing the material in the die (Abstract translation) but is silent to adding resin to fill a die. However, Kalnin teaches placing the material in the die and adding resin to the die after placing the material in the die. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Kalnin into that of Moichi since (a) this is merely the application of a known technique (filling afterwards versus filling before) to a known process which yields the predictable result of a solidified article having an increased resin content, or (b) rearrangement of process steps disclosed by the prior art such as Moichi and Kalnin is generally obvious to the ordinary artisan.

#### ***Response to Arguments***

5. Applicant's arguments filed 24 February 2009 have been fully considered but they are not persuasive or are moot in view of the rejections above. The arguments are on the following grounds:

(a) Kalnin does not recite "placing a composite of fiber and resin in a shrinkable die" or "heating occurs gradually along the length of the die..." None of the other cited references teach or suggest this combination of elements.

(b) Other claims recite other highly advantageous features.

(c) No reference suggests pulling each of the strands towards the top and bottom of the die.

6. Response:

(a) Note the new rejection above. The recitation of a particular relative orientation (top/bottom) does not distinguish the claimed invention from the prior art since there is no evidence that the orientation affects the claimed process, and in the alternative, it is submitted that one would have found it obvious to perform the process of Moichi in either orientation. Moichi provides a shrinkable die, placing a composite of fiber and resin, and gradually heating. While it is unclear how Moichi advances the heating means, in view of the Baier reference above it is submitted that it is known in the art to advance from one direction to the other rather than beginning at the middle.

(b,c) New rejections are set forth above. The relative orientation does not appear to be a distinguishing feature in this case.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew J. Daniels/  
Primary Examiner, Art Unit 1791  
5/9/09